

Application No.: 10/815,530

Filed: April 1, 2004

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Reply to Office Communication of April 25, 2005

REMARKS

This application contains claims 1-42. Claims 1-3, 5-6, 10, 11, 13-15, 19-21, 23-25, 28, 29 and 31-33 have been rejected. Claims 4, 8, 9, 12, 16-18, 22, 26, 27, 30, and 34-42 have been objected to. Claims 4, 8, 9, 12, 16-18, 22, 26, 27, 30, and 34-42 have been amended. Therefore, Claims 1-42 are pending in the Application. Reconsideration of the application based arguments submitted below is respectfully requested.

Claim Rejections - 35 U.S.C. §112

The Office Action rejected Claim 29 under 35 U.S.C. § 112, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the disclosure "interior air heat exchanger means rejects heat into the interior air at a rate equal to the first interior air heat exchanger means" is questioned.

Applicant would like to respectfully submit that the subject Claim 29 is definite in that the word "rate" is defined therein as a rate at which a specified "second" interior air heat exchange means rejects heat into the interior air, less the rate of the heat of compression of the system's compressor, and that the particular resulting rate is equal to the full/entire rate of heat rejection into the interior air by means of a specified "first" interior air heat exchange means. Such a rate of heat rejection into the air via interior air heat exchange means is quantifiable, and is

Application. No.: 10/815,530

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typically measured in the U.S.A. via BTUs, as is well understood by those skilled in the art. BTUs rejected into the air are well understood by those skilled in the art to be measured, in air handlers, via multiplying the difference between the particular interior air heat exchange means' entering and exiting air temperature by the cubic feet per minute airflow of the particular interior air heat exchange means, and then by multiplying the result by 1.08. In the subject Claim, the word "rate" is clearly explained to therein mean the rate that is equal to the rate of heat rejection into the air via a specified "first" interior air heat exchange means, less the rate (which "rate" is well understood by those skilled in the art to mean measured heat rejection, typically measured in BTUs) of the additional heat of compression produced by the system's compressor, for the specified "second" interior air heat exchange means. Air heat exchange means are described in more detail in the subject invention, being shown therein in at least one form as refrigerant to air heat exchange means, commonly called "air handlers" and are additionally well understood by those skilled in the art. Thus, the subject claim is definite, as the "rate" of heat rejection into the interior air via both the second and the first interior air heat exchange means is equal, with the exception that the second interior air heat exchange means simply has a lesser "rate" of heat rejection into the air than the first interior air heat exchange means, which lesser rate of heat rejection is equivalent to the actual "rate" of the heat of compression generated by the compressor. The determination of the rate of the heat of compression generated by a

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compressor is also well understood by those skilled in the art, and is also typically measured in BTUs. As such, Applicant respectfully requests that the rejection of Claim 29 under §112 be withdrawn.

Claim Rejections - 35 U.S.C. §102(b) and 35 U.S.C. §103

Claims 1-3, 5-6, 10, 11, 13-15, 19-21, 23-25, 28, 29 and 31-33 have been rejected under 35 U.S.C. §102(b) as being anticipated by Ikeda et al (5,598,887).

Claims 13-15, 21 and 31-33 have been rejected under 35 U.S.C. §103(a) based on Ikeda et al (5,598,887).

Applicant herein respectfully disagrees, in that Ikeda's is directed at the automotive industry, have nothing to do with direct exchange/expansion technology, have expansion valves in differing locations than the subject invention, and utilize no exterior heat exchange means when operating in both a cooling and a heating mode. Therefore, the invention of Ikeda would neither be obvious to those in the direct exchange/expansion field, nor would adequately function for the purposes of the subject invention.

For example, see the first six paragraphs under Summary and Objects of the Invention, at page 9, of Ikeda.

Therein, in the first paragraph, it is stated the general object of the Ikeda invention is to provide an air-conditioner for vehicles which does not deteriorate visibility of window glass in a vehicle during heating, and wherein a dehumidifying

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Reply to Office Communication of April 25, 2005

operation can be performed without lowering of the blowing air temperature. The subject invention by Wiggs has no application for vehicles, and has no application in the heating mode of operation, with or without a dehumidifying process while operating in the heating mode. To the contrary, the subject Wiggs dehumidification invention is designed not to lower interior air temperatures while the heat pump system is operating in the summer (the cooling mode only season), and particularly when the system is operating in the dehumidification mode only, all while the heat pump is neither operating in the cooling mode nor in the heating mode. Wiggs' invention has no applicability whatsoever during the heating season and/or during a heating mode of operation. Wiggs' invention has no applicability in attempting to simultaneously provide dehumidification during a heating mode of operation.

Therein, in the second paragraph, it is stated that a substantial object of the Ikeda invention is to provide an air-conditioner, for vehicles, in which dehumidification can be performed simultaneously with heating. Again, the subject Wiggs invention is neither designed nor intended to operate in a heating mode, but, rather only in a cooling and/or in a dehumidification mode. Further, the purpose of the Ikeda invention's operating in the dehumidification mode while in heating is to remove humidity from the windshield for clear vision. Again, the subject Wiggs invention is never intended to operate in the heating mode, and has no objective of clearing moisture from the windshield of a vehicle.

Application No.: 10/815,530

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Therein, in the third through sixth paragraphs, it is stated that another object of the Ikeda invention is to provide dehumidification simultaneously with heating, for vehicles, where the use of a four-way valve is used, in conjunction with two interior air heat exchangers, but where the refrigerant gas passes directly from a second interior heat exchanger, used for heating, through an expansion means to a first interior air heat exchanger. The subject Wiggs invention does not utilize any four way valves, and does not pass refrigerant gas directly from a second interior heat exchanger, used for heating, through an expansion means to a first interior air heat exchanger. Rather, the subject Wiggs invention, which is designed for cooling and dehumidification purposes only, not for primary heating purposes, passes refrigerant gas exiting the compressor through a second interior air heat exchange means, and immediately thereafter passes the refrigerant gas through an exterior heat exchange means, all prior to passing through any other expansion means and all prior to passing through any other interior air heat exchange means. In fact, if the means described by Ikeda were employed to operate the subject Wiggs invention, the subject Wiggs invention would not work. Further, the invention as described by Ikeda, in the second paragraph at page 16, would be of highly questionable value at all, other than potentially removing humidity from the windshield of a vehicle while the system was operating in the heating mode, as there is no exterior heat exchanger employed at all, as there is in the Wiggs invention when operating in the cooling and in the dehumidification modes. Thus,

Application No.: 10/815,530

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the effect of the Ikeda invention would simply be that of transferring heat and humidity to different interior locations within a vehicle, absent any exterior heat or humidity rejection, as is always the case with Wiggs' subject invention when operating in at least one of the cooling and dehumidification modes (never in the heating mode where heat is externally acquired).

Thus, while Ikeda provides potential ideas to remove windshield humidity from the interior glass of vehicles, even when the vehicle's air-conditioning system is operating in the heating mode, the designs/inventions of Ikeda, inclusive of the expansion valve locations and lack of exterior heat exchange means in some operative modes, would have no practical operational effect for the purposes of a heat pump system designed to operate in one of a cooling mode only, and in one of a dehumidification mode only without heating and/or raising the temperature of the interior air while operating in the dehumidification mode only, as does Wiggs' subject invention.

Allowable Subject Matter

The Examiner objected to Claims 4, 8, 9, 12, 16-18, 22, 26, 27, 30, and 34-42 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Applicant has amended the claims accordingly.

Oct. 25, 2005 7:42PM Waddey & Patterson

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No. 0829 P. 33

Application No.: 10/815,530

Filed: April 1, 2004

Response dated: October 25, 2005

Reply to Office Communication of April 25, 2005

Accordingly, Applicant believes that all of the pending claims are in condition for allowance and respectfully requests a favorable action to that effect.

Applicants have commented on some of the distinctions between the cited references and the claims to facilitate a better understanding of the present invention. This discussion is not exhaustive of the facets of the invention, and Applicants hereby reserve the right to present additional distinctions as appropriate. Furthermore, while these remarks may employ shortened, more specific, or variant descriptions of some of the claim language, Applicants respectfully note that these remarks are not to be used to create implied limitations in the claims and only the actual wording of the claims should be considered against these references.

The Commissioner is authorized to charge any deficiency or credit any overpayment associated with the filing of this Response to Deposit Account 23-0035.

Respectfully submitted,



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CERTIFICATE OF TRANSMISSION

I hereby certify that this Response and Amendment in Application No. 10/815,530 having a filing date of April 1, 2004 is being transmitted via facsimile to:

Mail Stop Amendment
Commissioner for Patents

Art Unit: 3744
Examiner: Ali, Mohammad M.
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on October 25, 2005.

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